Type 0678H

Enhanced - breaking Capability Brick Fuse

HF 0678H Series - 3912 Size — RoHS 2 Compliant

Features

- Enhanced – Breaking capacity
- Surface mount high current fuse
- Current rating from 500mA to 40A
- Wide operating temperature range from -55 °C to 125 °C
- Tape & Reel for auto-insert SMD process
- Compatible with 260 °C, IR Pb-free solder process
- RoHS compliant with exemption 7a
- Halogen Free, (MSL = 1)

Applications

- Voltage regulator module
- PC server
- Office electronic equipment
- Industrial equipment
- Medical equipment
- POE, POE+
- Power supply
- DC-DC Converter
- Mass Storage Systems

HALOGEN FREE = HF

Electrical Characteristics (UL/CSA/STD. 248-14)

Testing Current	Blow Time	
	Minimum	Maximum
100%	4 Hrs.	N/A
200%	N/A	60 Sec

Physical Specifications

Materials	Body : Ceramic
	Terminations : Silver Plated Caps
Marking	On Fuse :
	"Current Rating", "H" in green color, "bel" stamped in end caps.
	On Label :
	"bel", "0678H", "Current Rating", "Voltage Rating", "Interrupting Rating"," Appropriate Safety Logos" and " ", " " (China RoHS compliant).

Safety Agency Approvals

SAFETY AGENCY	SAFETY AGENCY CERTIFICATE	VOLTAGE RATING (V)	AMPERE RANGE / VOLT @ I.R. ABILITY*
c UL us	E20624	500mA - 40A / 250 VAC 125 VDC	500mA - 5A / 125V @ 1000A AC 250V @ 300A AC 125V @ 2000A DC >5A - 20A / 250V @ 100A AC 125V @ 500A AC 125V @ 1000A DC 100V @ 1500A DC >20A - 30A / 250V @ 100A AC 125V @ 200A AC 125V @ 1000A DC >30A - 40A / 250V @ 100A AC 125V @ 500A AC 125V @ 1000A DC 100V @ 1500A DC
* I.R. = INTERRUPTING RATING = SHORT CIRCUIT RATING (AMPS)			

Specifications subject to change without notice

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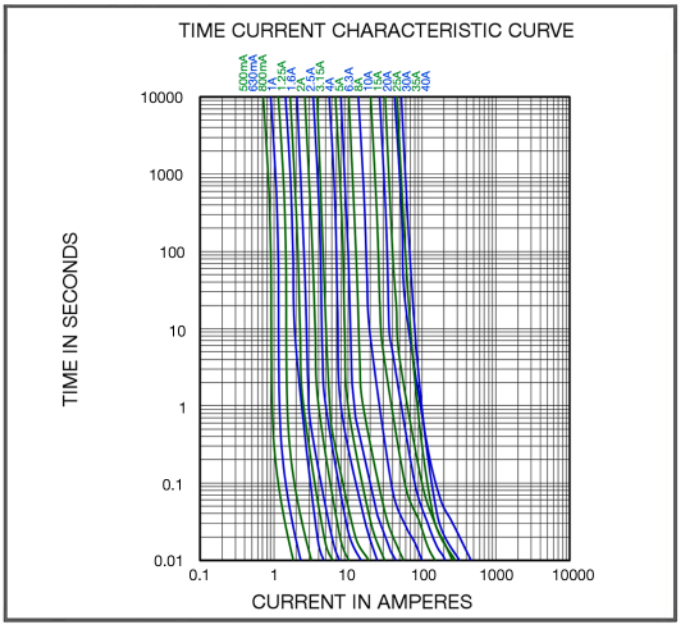
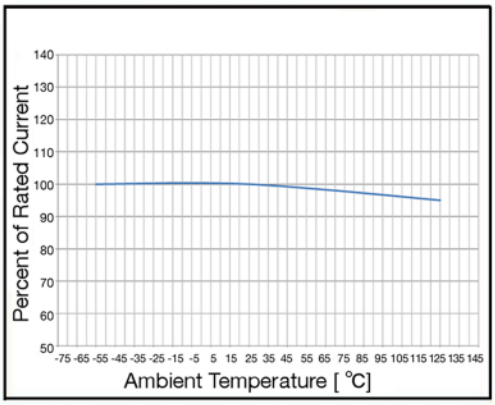
Environmental Specifications



Temperature Derating Curve



Electrical Specifications

Part Number	Ampere Rating	Nominal Cold Resistance (ohm)	Nominal Volt-drop @100% In (Volt)	Voltage and Interrupting Ratings	Melting I²T @10 In (A² Sec)	Nominal Power Dissipation (W)	Agency Approvals
0678H0500-02	500mA	0.66	1.00	See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings	0.03	0.5	Y
0678H0630-02	630mA	0.54	1.30		0.06	0.8	Y
0678H0800-02	800mA	0.38	1.10		0.08	0.9	Y
0678H1000-02	1A	0.21	0.70		0.3	0.7	Y
0678H1250-02	1.25A	0.10	0.20		0.4	0.3	Y
0678H1600-02	1.6A	0.08	0.19		0.5	0.3	Y
0678H2000-02	2A	0.059	0.18		1.0	0.4	Y
0678H2500-02	2.5A	0.043	0.18		1.8	0.5	Y
0678H3150-02	3.15A	0.035	0.18		2.8	0.6	Y
0678H4000-02	4A	0.021	0.18		7.8	0.7	Y
0678H5000-02	5A	0.016	0.18		10	0.9	Y
0678H6300-02	6.3A	0.013	0.17		20	1.1	Y
0678H8000-02	8A	0.010	0.15		34	1.2	Y
0678H9100-02	10A	0.0060	0.13		90	1.3	Y
0678H9150-02	15A	0.0041	0.12		220	1.8	Y
0678H9200-02	20A	0.0028	0.09		420	1.8	Y
0678H9250-02	25A	0.0023	0.08		660	2.0	Y
0678H9300-02	30A	0.0015	0.08		2000	2.4	Y
0678H9350-02	35A	0.0016	0.11		735	3.9	Y
0678H9400-02	40A	0.0015	0.11		1000	4.4	Y

Consult manufacturer for other ratings

NOTES:

All tests were conducted with the fuses soldered to a printed circuit boards with a nominal thickness of 1.6 mm. The copper test circuit trace was a printed circuit with an overall length of 100 mm, copper thickness/width as described below. The printed circuit boards were mounted by screws to a test fixture having brass blocks for connection of the test leads. All samples were soldered to the test boards by the manufacturer.

Fuse rating	Test Board Trace Dimensions
500 mA – 5 A	1 oz. copper, 5.0 mm wide
>5 A – 30 A	3 oz. copper, 10 mm wide.
>30 A – 40 A	3 oz. copper, 15 mm wide.

Caution:

- Minimum fusing point:
The 0678H Series fuses are NOT intended to be operated at currents between 100% and 200% of ampere rating. Prolonged operation at currents in this range may result in overheating of the fuse and/or desoldering of the fuse caps from the PCB pad.

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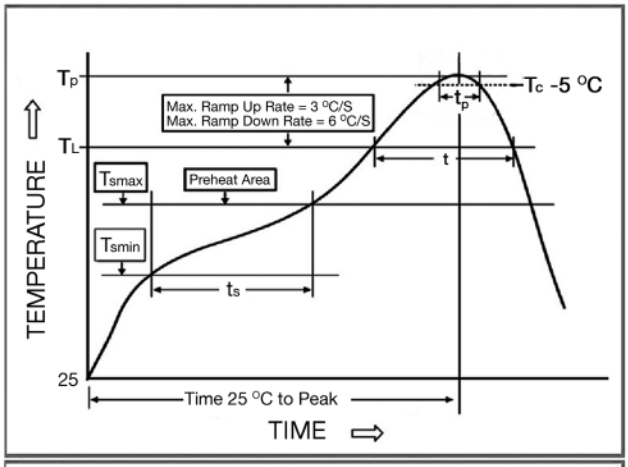
Environmental Specifications

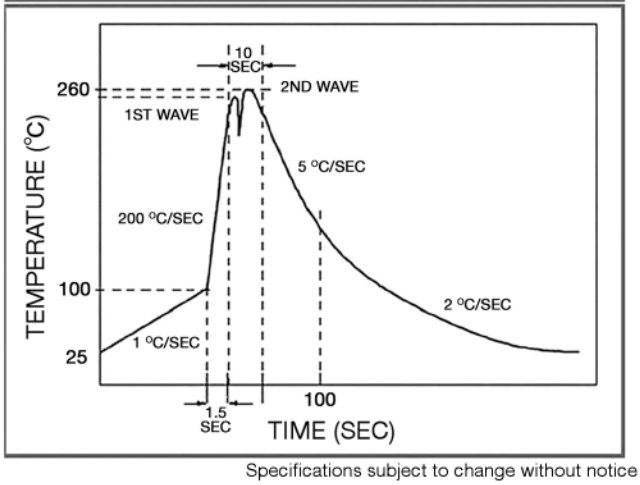
Shock Resistance	MIL-STD-202G, Method 213B, Test Condition 1 (100 G's peak for 6 milliseconds; Sawtooth waveform)
Vibration Resistance	MIL-STD-202G, Method 201A(10-55 Hz,0.06 inch, total excursion).
Salt Spray Resistance	MIL-STD-202G, Method 101E, Test Condition B(48 hrs).
Insulation Resistance	MIL-STD-202G, Method 302, Test Condition A (After Opening) 10,000 ohms minimum.
Solderability	MIL-STD-202G, Method 208H
Resistance to solder Heat	MIL-STD-202G, Method 210F, Test Condition C.Top Side(260 °C, 20 sec) MIL-STD-202G, Method 210F, Test Condition D.Bottom Side(260 °C,10 sec)
Thermal Shock	MIL-STD-202G, Method 107G, Test Condition B (-65 °C to +125 °C).
Operating Temperature	-55 °C to +125 °C
Moisture Sensitivity Level	1 (According to IPC J-Std-020)

Soldering Parameters

IR Reflow Profile (IPC/JEDEC J-STD-020D)	
Preheat & Soak Temperature min (T_{smin}) Temperature max (T_{smax}) Time (T_{smin} to T_{smax}) (t_s)	 150 °C 200 °C 60 -120 seconds
Average ramp-up rate (T_{smax} to T_p)	3 °C/second max.
Liquidous temperature (T_L) Time at liquidous (t_L)	217 °C 60 - 150 seconds
Peak temperature (T_p)	260 °C max
Time (tp) within 5 °C of the specified classification temperture (T_c)	30 seconds
Average ramp-down rate (T_p to T_{smax})	6 °C/second max.
Time 25 °C to peak temperature	8 minutes max.



Lead-free Wave Soldering Profile	
Wave Soldering Parameter	
Average ramp-up rate	200 °C / second
Heating rate during preheat	typical 1 - 2 °C / second Max 4 °C / second
Final preheat temperature	within 125 °C of soldering temperature
Peak temperature Tp	260 °C
Time within +0 °C / -5 °C of actual peak temperature	10 seconds
Ramp-down rate	5 °C / second max.



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Fuse FGNO Explanation

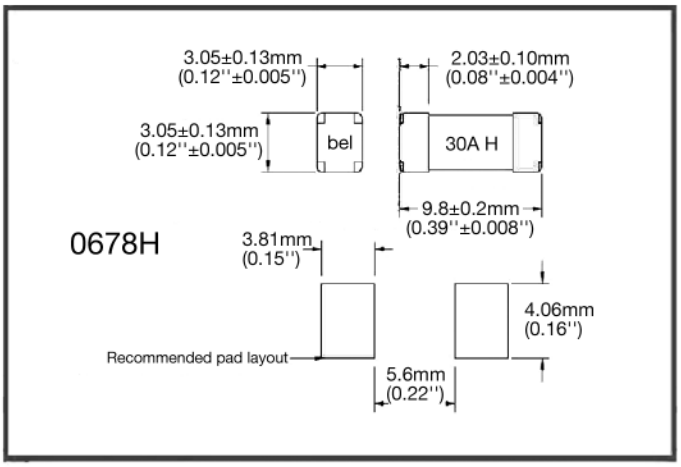
0678H [XXXX] - 02

0678H=0678H Series;[XXXX]=Ampere Rating; XX=See Ordering Information as below

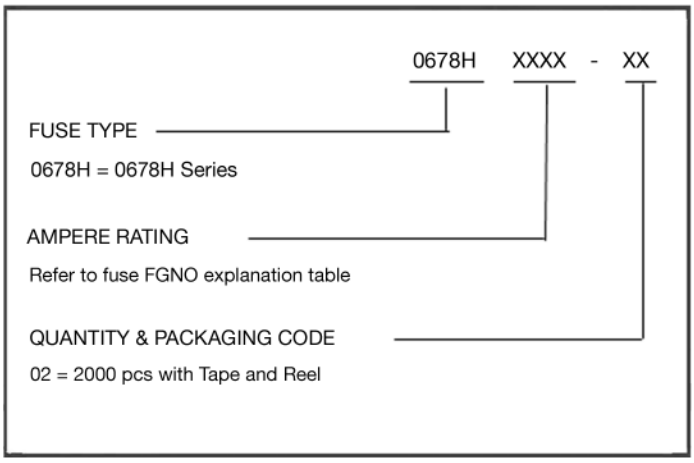
Fraction	Decimal	Milliamps	Bel FGNO[XXXX]
1/2	.500	500	0500
	.630	630	0630
8/10	.800	800	0800

Fraction	Decimal	Amps	Bel FGNO[XXXX]
	1.0	1	1000
1-1/4	1.25	1.25	1250
	1.60	1.6	1600
	2.0	2	2000
2-1/2	2.5	2.5	2500
	3.15	3.15	3150
	4.0	4	4000
	5.0	5	5000
	6.3	6.3	6300
	8.0	8	8000
		10	9100
		15	9150
		20	9200
		25	9250
		30	9300
		35	9350
		40	9400

Mechanical Dimensions



Ordering Information



Packaging

Packaging Tape & Reel	Packaging Specification	Quantity	Quantity & Packaging Code
16 mm wide tape with 13 inches Diameter reel	EIA Standard 481-E	2000	0678HXXXX-02

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